

Application No.: 09/997,355

Docket No.: JCLA8138

AMENDMENTS

Please amend the application as indicated hereafter.

In the Claims:

Claim 1. (Currently amended) A method of processing the driving program of a smart peripheral device in a computer system using an operating system, wherein the smart peripheral device is connected to the computer system through a peripheral bus and the operating system includes a bus-driving program for controlling the peripheral bus and the processing method comprising:

requesting that the operating system return any data regarding a connectivity status of a particular peripheral device connected to the peripheral bus;

receiving any plug-and-play indicator from the operating system;

inspecting a driving program of the smart peripheral device using the plug-and-play notification and determining whether if the connected peripheral device is supported; and

if the connected peripheral device is supported,

using the plug-and-play notification to open the function device object established by a factory-provided driving program;

using the function device object to retrieve a physical device object established through the bus-driving program;

using the physical device object to retrieve a plurality of descriptors and calling data of the connected peripheral device; and

using the descriptors and calling data to set up necessary data for executing the driving program of the smart peripheral device;

if the connected peripheral device is not supported, a general-purpose driving program for communicating with the smart peripheral device through the smart peripheral device to the physical device object, where if the smart peripheral device is connected to the computer system:

the general-purpose driving program switches on the function device object in order to:

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retrieve the physical device object established through the bus-driving program according to the function device object; and
retrieve a plurality of descriptors and calling data of the smart peripheral device according to the physical device object; and
finally set up necessary information for executing the general-purpose driving program.

Claim 2. (Original) The processing method of claim 1, wherein requesting that the operating system return any data regarding the connectivity status of a particular peripheral device connected to the peripheral bus further includes registering the request under a plug-and-play administrator within the operating system and requesting that a classification identification for the connected peripheral device matching the peripheral bus be returned.

Claim 3. (Currently amended) The processing method of claim 1, wherein receiving the plug-and-play notification from the operating system occurs when the peripheral device has already plugged into the peripheral bus or the peripheral device has just been plugged into the peripheral bus, and the operating system utilizes the plug-and-play notification to inform the driving program, wherein requesting that the operating system return any data regarding the connectivity status of a particular peripheral device connected to the peripheral bus further includes registering the request under a plug-and-play administrator within the operating system and requesting that a classification identification for the connected peripheral device matching the peripheral bus be returned.

Claim 4. (Original) The processing method of claim 1, wherein using the plug-and-play notification to inspect whether the driving program supports the connected peripheral device or not includes using a special identification code in the plug-and-play notification to inspect the connected peripheral device and determine if the connected peripheral device matches the smart peripheral device to be processed by the driving program.

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Claim 5. (Original) The processing method of claim 4, wherein;

if the peripheral bus is a Universal Serial Bus (USB), the special identification code is a vendor identification and a product identification; and

if the peripheral bus is an IEEE-1394 bus, the special identification code is a plug-and-play identification.

Claim 6 (Currently amended) The processing method of claim 1, wherein the plug-and-play notification is independent and compatible with the operating system to open the function device object established through the factory-provided driving program includes using a device name within the plug-and-play notification corresponding to the connected peripheral device,

Claim 7 (Currently amended) The processing method of claim 1, wherein using the function device object to retrieve the physical device object established through the bus-driving program further includes to :

prepare a special input/output request packet and calling the function device object; and
retrieve the physical device object according to a pointer returned from the function device object inside the special input/output request packet
,wherein if an application program used by the computer system issues a processing request to call up the driving program of the smart peripheral device, the processing method further includes:
inspecting the connected peripheral device to check if the peripheral device really exists,
if the peripheral device is absent, responding by issuing an error signal to the application program, and
if the peripheral device is not absent, determining whether there is a ~~any~~ process request corresponding thereto and a related ~~any~~ end point for the connected peripheral device;
if the peripheral device does not have any end point, responding by returning the errors signal to the application program; and
if the peripheral has end point, then:
setting up a request block;

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setting up an input/output request packet;

transmitting the input/output request packet to the physical device object for further processing,

when the physical device object finishes processing, responding by sending a correct signal to the application program; and

when the physical device object encounters a delay, responding by sending a delay signal to the application program.

Claim 8. (Original) The processing method of claim 1, wherein,

if the peripheral bus is a Universal Serial Bus (USB), the descriptors and calling data include a device descriptor, a configuration descriptor, an interface descriptor, an end-point descriptor and a USB pipe handles.

Claim 9. (Original) The processing method of claim 1, wherein if the peripheral bus is an IEEE-1394 bus, the descriptor and the calling data are stored a configuration read-only-memory.

Claim 10. (Original) The processing method of claim 1, where if the received plug-and play notification indicates an absent peripheral device, and the processing includes:

inspecting whether the peripheral device is really absent;

informing through calling an application program of the driving program of the peripheral device that the peripheral device is absent;

canceling any in-process request on the absent peripheral device; and

returning the operating system to an initial state.

Claim 11 (Original) The processing method of claim 10, wherein the non-existence of the peripheral device means either a shutdown of power to the peripheral device or a removal of the peripheral device from the peripheral bus.

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Claim 12. (Original) The processing method of claim 1, wherein the peripheral bus is either a Universal Serial Bus (USB) or an IEEE-1394 bus.

Claim 13. (Cancelled)

Claim 14. (Currently amended) A computer system ~~that can be connected~~ to a smart peripheral device without changing application programming interface or loading additional driver, the computer system comprising:

a peripheral bus for connecting the smart peripheral device to the computer system;
an operating system having a bus-driving program for controlling the peripheral bus, wherein the bus-driving bus program includes a physical device object for corresponding with the smart peripheral device and inspecting a driving program of the smart peripheral device using the plug-and-play notification and determining whether the connected peripheral device is supported;

a factory-provided driving program having a function device object, wherein the function device object communicates with the smart peripheral device through the physical device object; and

a general-purpose driving program for communicating with the smart peripheral device through the physical device object, where if the smart peripheral device is connected to the computer system and the connected peripheral device is not supported, the general-purpose driving program process includes to:

switch on the function device object established through the factory-provided driving program;

retrieve the physical device object established through the bus-driving program according to the function device object;

retrieve a plurality of descriptors and calling data of the smart peripheral device according to the physical device object; and

finally set up necessary information for executing the general-purpose driving program.

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Claim 15. (Original) The computer system of claim 11, wherein the peripheral bus is either a Universal Serial Bus on an IEEE-1394 bus.

Claim 16. (Currently amended) The computer system of claim 11, wherein the system further includes an application program such that when the application program issues a processing request call to the general-purpose driving program without additional interface or driver, and the process includes:

the general-purpose driving program sets up a request block and an input/output request packet,

the input/output request packet is sent to the physical device object for further processing, and after processing,

the physical device object responds by sending a correct signal to the application program, and

if the processing encounters a delay, the physical device object responds by sending a delay signal to the application program.